Conveyance System Improvements

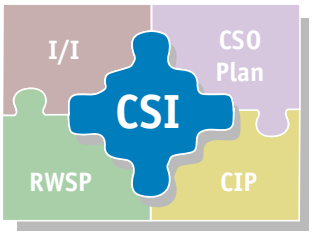
CSI PROJECT

Spring 2000

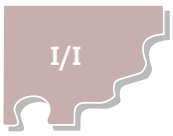
KING COUNTY • WASTEWATER TREATMENT DIVISION

What is the Conveyance System Improvements Project?

King County **is responsible for conveying and treating wastewater collected by 34 local sewer agencies in the King County region. The County has a multi-year multidisciplinary effort called the Conveyance System Improvements (CSI) project. This project focuses on upgrading and improving the existing regional conveyance system level of service – as well as planning for future conveyance extensions. The County's regional conveyance system consists of interceptor sewers, pump stations, forcemains, regulators, and tunnels that transport wastewater from local sewer systems to the County's two regional secondary treatment plants. The CSI project integrates with other King County programs including the Infiltration/Inflow (I/I) Control Program, the Regional Wastewater Services Plan (RWSP), the Combined Sewer Overflow (CSO) Program, and the Capital Improvements Program (CIP).**



The CSI Project integrates with other related project efforts.



CSI INTEGRATES WITH…

Regional Infiltration/Inflow Control Program

In December 1999, the King County Council approved the Regional Infiltration/Inflow (I/I) Control Program as part of the Regional Wastewater Services Plan. The I/I program is a comprehensive investigation of I/I in the local agency service area and is based on a cooperative partnership between the County and the 34 local agencies that serve the region.

This program is designed to identify extraneous I/I flows in local conveyance systems that ultimately flow into the County's wastewater conveyance interceptors and treatment facilities. This metered flow information, and the cost-effectiveness data obtained from several pilot projects will be used to develop a long-term comprehensive regional program for reducing I/I as well as to provide improved flow projections for design of the County's regional facilities.

Earlier this year, about 70 local agency and elected officials, policy and technical representatives, consultants, and County staff met to kick off the I/I program. They participated in five roundtable forums on pilot project selection criteria; reimbursement criteria for pilot projects; agency equity; local agency coordination, communication and briefings; and I/I assessment protocols.

In January 2000, the County installed 75 flow monitors in the King County interceptor system to start capturing new baseline flow data. By Fall 2000, hundreds of additional flow meters will be installed in or near County and local agency pipes to measure and document actual service basin flows from each local agency.

During this five-year program, about ten pilot projects will be selected and implemented to test various methods for

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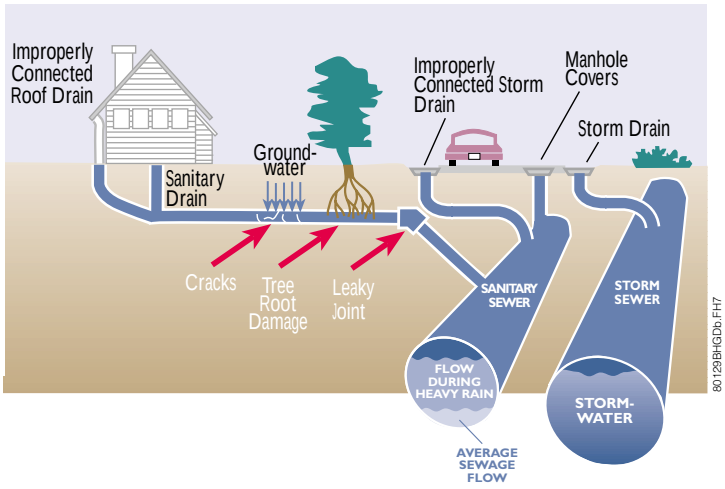
controlling I/I. Following the construction of these projects, flow meters will again be used to determine the volume of I/I flow. The difference between pre- and post-rehabilitation flows for similar storms will serve to illustrate the effectiveness of each rehabilitation method implemented. This pilot information will also be used to estimate potential long-term I/I rehabilitation program benefits and cost-effectiveness.

The CSI project team is working closely with the I/I program team to ensure that where significant I/I reductions can be successfully realized, appropriate phasing and sizing of system improvements yield benefits to both the local and regional wastewater systems.



Wastewater Basin Planning Update: Hidden Lake/Boeing Creek Basin

The Hidden Lake service area in the northwest corner of King County covers both sewer basins that are tributary to the Hidden Lake Pump Station and sewer basins that discharge to King County facilities downstream of the Hidden Lake Pump Station, such as the Boeing Creek Trunk and Richmond Beach Pump Station. This service area includes approximately 2,495 acres of the Shoreline Wastewater Management District's collection system, and the entire 380-acre Highlands Sewer District. These local sewer collection systems discharge to the County's conveyance system at the Hidden Lake Pump Station and numerous locations along the Boeing Creek Trunk.

The Shoreline and Highlands sewer districts have been working with the County to help identify current conveyance capacity and pipe corrosion problems. The capacity of the Hidden Lake Pump Station is insufficient to pass wet weather flows, and the capacity of the Boeing Creek Trunk, which carries wastewater downstream of the pump station, is even more limited.

The CSI team evaluated various approaches that would reduce the frequency of conveyance system overflows to the King County standard of once per 20 years. These approaches have been organized into four general categories of alternatives (see map on next page), including:

- Upgrading the capacity of existing conveyance facilities and maintaining current wastewater routing (Alt. A).
- Building storage facilities to attenuate peak flows and maintain current wastewater routing (Alt. B1, B2).
- Building new conveyance facilities to reroute wet weather flows away from the Boeing Creek Trunk toward Edmonds (Alt. C).
- Constructing various alignments, diversions, and storage combinations (Alt. D1-D4, D6, and D7).

These alternatives were evaluated and compared based on factors such as cost, constructability, potential environmental impacts, operations and maintenance needs, local agency service

Conveyance System Improvements (CSI) Project **Major Milestones and Decision Points**

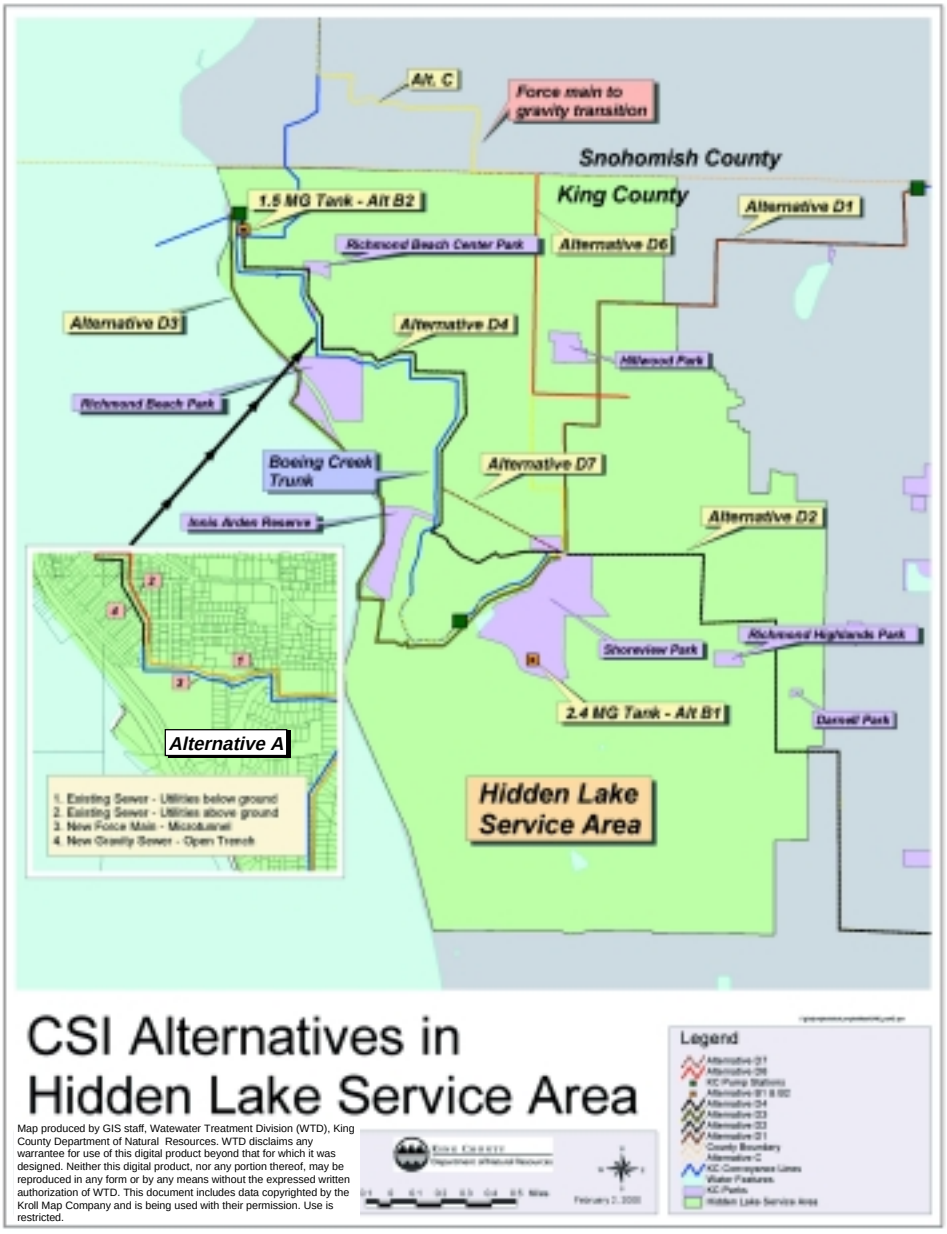
2000			2001				2002				
Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
South end planning completed Projects to CIP: • Hidden Lake PS • Pacific PS • Sweyolocken II • Tukwila Interceptor	South end projects to CIP	South Lake Sammamish planning completed	South Lake Sammamish projects to CIP	North Green River planning completed	NW Lake Washington planning completed North Green River projects to CIP	NW Lake Washington projects to CIP North Lake Washington planning initiated	South Lake Washington planning completed	South Lake Washington projects to CIP SE Lake Washington planning completed	CSI contract phase III North Lake Washington planning completed	North Lake Sammamish planning completed SE Lake Washington projects to CIP	North Lake Sammamish projects to CIP

requirements, and compatibility with ongoing King County regional initiatives. Elements of the four alternatives will be combined to provide flexibility in the system configuration and implementation so that future regional benefits from local I/I reduction can be realized in either capital or operational cost savings. In April 2000, a planning alternative that optimizes both technical and programmatic goals, and meets local agency and city concerns will be transferred to CIP for predesign, design, and construction.

CSI Project Progress to Date

Wastewater Basin Planning King County completed an initial examination of issues and alternatives for improvements to the conveyance system and pump stations in the Hidden Lake/Boeing Creek and South/Central Green River basins. King County is currently gathering information for further planning level evaluation of these alternatives. (See Hidden Lake article on page 2 for more information.)

Wastewater basin planning is now underway in the South Lake Sammamish planning area, and should be complete in the Summer of 2000. The CSI project team will be working closely with the cities of Issaquah and Bellevue, and the Sammamish Plateau Water and Sewer District to coordinate the County's system improvements and the local agency's longer-range sewer system plans. During this planning stage, the County will define existing system conditions and assess alternatives for improving the conveyance system.



Project-Specific Planning The County explored options for diverting wastewater flows away from the County's Sweyolocken Pump Station, which has limited capacity. The County plans to divert these flows to prevent wastewater overflows at the existing 35-year old pump station that is being upgraded to its capacity limit of 26 million gallons per day. The County is working closely with the City of Bellevue to evaluate the most efficient use of available local and regional facilities. Two options for diverting this excess flow have been selected for further evaluation and an alternative will be selected for predesign and design in the near future.

Project planning is now complete for both the Kirkland and Juanita Bay pump stations and their associated conveyance systems. Both these projects have been transferred to the County's Capital Improvement Program (CIP) for

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2003		
Q2	**Q3**	**Q4**
North Lake Washington projects to CIP	Final planning reports	CSI contract completed Final project reports

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implementation of the resulting capital project. Now that methods for improving these wastewater systems have been determined, the County will be selecting consultants to help with predesign, design, and implementation of the improvements. King County anticipates that predesign engineering will be underway on both these projects later in 2000.

Planning is nearly finished for the Pacific Pump Station, located in the southern end of the King County service area. This project will be ready for CIP design and implementation in April 2000.

As part of the recently adopted Regional Wastewater Services Plan, the King County Council directed that a six million gallon North Creek Storage Facility be online in the year 2002. The CSI project team completed planning and design criteria development efforts that will allow the project to meet the tight schedule. This project was transferred to the CIP team in early 2000.

Next Steps The CSI project schedule and milestones are shown in the bar at the bottom of page 2. This CSI project schedule indicates projected dates of completion and transfer to CIP, and is subject to change.

Local Sewer Agency Involvement is Key

Local sewer agencies are an important part of the CSI project. The County appreciates and encourages local sewer agency involvement as planning in the wastewater service area moves forward. All final CSI project planning reports are available at the King County web site ***http://dnr.metrokc.gov/wtd/csi***. CD-ROM copies are also available on request.

To become involved **with the project or to receive project updates, contact Bob Peterson, CSI Project Manager at (206) 684-2093, or by e-mail at *bob.peterson@metrokc.gov*.**

This information is available in accessible formats on request at (206) 684-1280.

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VISIT OUR WEBSITE AT http://dnr.metrokc.gov/wtd

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